CLAIM AMENDMENTS

1. (Currently Amended)

A method for forming a film

comprising a first process and a second process,

the first process comprising the steps of:

(i) supplying a discharge gas to a first discharge space of an atmospheric pressure plasma processing apparatus where high frequency electric field A is generated at atmospheric pressure or at approximately atmospheric pressure, wherein high frequency electric field A is formed by superposing a first high frequency electric field <u>of 200 kHz or less</u> and a second high frequency electric field <u>of 800 kHz or more</u>, and whereby the discharge gas is excited;

(ii) transferring energy of the excited discharge gas to a film forming gas, whereby the film forming gas is excited; and

(iii) exposing a substrate to the excited film forming gas, whereby a film is formed on the substrate,

the second process comprising the steps of:

(iv) supplying a gas containing an oxidizing gas to a second discharge space of the atmospheric pressure plasma processing apparatus where high frequency electric field B is generated at atmospheric pressure or at approximately

atmospheric pressure, whereby the gas containing the oxidizing gas is excited; and

(v) exposing the film formed in the first process to the excited gas containing the oxidizing gas, and

moving the substrate between the first discharge space and the second discharge space.

2. (Currently Amended)

A method for forming a film

comprising a first process and a second process,

the first process comprising the steps of:

(i) supplying a discharge gas to a first discharge space of an atmospheric pressure plasma processing apparatus where high frequency electric field A is generated at atmospheric pressure or at approximately atmospheric pressure, wherein high frequency electric field A is formed by superposing a first high frequency electric field <u>of 200 kHz or less</u> and a second high frequency electric field <u>of 800 kHz or more</u>, and whereby the discharge gas is excited;

(ii) putting a film forming gas in contact with the excited discharge gas;

(iii) exposing a substrate to the film forming gas put in contact with the excited discharge gas, whereby a film is formed on the substrate,

the second process comprising the steps of:

(iv) supplying a gas containing an oxidizing gas to a second discharge space of the atmospheric pressure plasma processing apparatus where high frequency electric field B is generated at atmospheric pressure or at approximately atmospheric pressure, whereby the gas containing the oxidizing gas is excited; and

(v) exposing the film formed in the first process to the excited gas containing the oxidizing gas, and

moving the substrate between the first discharge space and the second discharge space.

3. (Currently Amended)

A method for forming a film

comprising a first process and a second process,

the first process comprising the steps of:

(i) supplying gas 1 containing a film forming gas to a first discharge space of an atmospheric pressure plasma processing apparatus where high frequency electric field A is generated at atmospheric pressure or at approximately atmospheric pressure, wherein high frequency electric field A is formed by superposing a first high frequency electric field <u>of 200 kHz or less</u> and a second high frequency electric field <u>of 800 kHz or more</u>, and whereby gas 1 is excited; and

(ii) exposing a substrate to exited gas 1, whereby a film is formed on the substrate,

the second process comprising the steps of:

(iii) supplying gas 2 containing an oxidizing gas to a second discharge space of the atmospheric pressure plasma processing apparatus where high frequency electric field B is generated at atmospheric pressure or at approximately atmospheric pressure, whereby gas 2 is excited;

(iv) exposing the film formed in the first process to excited gas 2 containing the oxidization gas, and

moving the substrate between the first discharge space and the second discharge space.

4. (Previously Presented)

The method of claim 3, wherein:

gas 1 contains a discharge gas and a reducing gas in addition to the film forming gas; and

the discharge gas contains nitrogen of which content is 50% by volume or more based on a volume of the discharge gas.

5. (Original)

The method of claim 4, wherein the reducing gas is hydrogen.

6. (Previously Presented)

The method of claim 4, wherein:

a discharge space of the first process is formed between a first electrode and a second electrode which are facing each other; and

the first high frequency electric field is applied by the first electrode and the second high frequency electric field is applied by the second electrode.

7. (Previously Presented)

The method of claim 6, wherein:

a frequency of the second high frequency electric field $\omega 2$ is higher than a frequency of the first high frequency electric field $\omega 1$;

intensity of the first high frequency electric field V1, intensity of the second high frequency electric field V2, and intensity of discharge starting electric field IV1 satisfy one of the formulas:

$V1 \geq IV1 > V2$ and $V1 > IV1 \geq V2$; and

a power density of the second high frequency electric field is not less than 1 W/cm^2.

8. (Original)

The method of claim 7, wherein:

high frequency electric field B is formed by superposing a third high frequency electric field and a fourth high frequency electric field.

9. (Original)

The method of claim 8, wherein:

a discharge space of the second process is formed between a third electrode and a fourth electrode which are facing each other; and

the third high frequency electric field is applied by the third electrode and the fourth high frequency electric field is applied by the fourth electrode.

10. (Previously Presented)

The method of claim 9, wherein the first electrode and the third electrode are common.

11. (Original)

The method of claim 8, wherein:

a frequency of the fourth high frequency electric field $\omega 4$ is higher than a frequency of the third high frequency electric field $\omega 3$;

intensity of the third high frequency electric field V3, intensity of the fourth high frequency electric field V4, and intensity of discharge starting electric field IV2 satisfy one of the formulas:

$$V3 \geq IV2 > V4 \text{ and } V3 > IV2 \geq V4; \text{ and}$$

a power density of the fourth high frequency electric field is not less than $1W/cm^2$.

12. (Original)

The method of claim 3, wherein the film is a metal oxide film.

13. (Original)

The method of claim 3, wherein the film is a transparent conductive film.

14. (Original)

The method of claim 3, wherein the film forming gas contains an organo-metallic compound having a metal atom selected from the group consisting of indium(In), tin(Sn), zinc(Zn), zirconium(Zr), antimony(Sb), aluminum(Al), gallium(Ga) and germanium(Ge).

15. (Original)

The method of claim 3, wherein the first process and the second process are alternately repeated a plurality of times.

16. (Original)

The method of claim 3, wherein a thickness of the accumulated film in the first process per batch is not more than 10 nm.

17. (Previously Presented)

A method for forming a film

comprising a first process and a second process,

the first process comprising the steps of:

(i) supplying gas 1 containing a film forming gas to a first discharge space of an atmospheric pressure plasma processing apparatus at atmospheric pressure or at approximately atmospheric pressure;

(ii) applying high frequency electric field A to the first discharge space, whereby gas 1 is excited; and

(iii) exposing a substrate to the excited gas 1 whereby a film is formed on the substrate,

wherein

(a) the high frequency electric field A is formed by superposing a first high frequency electric field and a second high frequency electric field;

(b) a frequency of the second high frequency electric field $\omega 2$ is higher than a frequency of the first high frequency electric field $\omega 1$;

(c) intensity of the first high frequency electric field V1, intensity of the second high frequency electric field V2, and intensity of discharge starting electric field IV1 satisfy one of the following formulas:

$$V1 \geq IV1 > V2 \text{ and } V1 > IV1 \geq V2;$$

(d) a power density of the second high frequency electric field is not less than 1 W/cm^2;

(e) gas 1 contains a reducing gas and a discharge gas;

(f) the discharge gas contains nitrogen of which content is 50% by volume or more based on a volume of a discharge gas in addition to the film forming gas; and

(g) the film forming gas contains an organo-titanium compound,

the second process comprising the steps of:

(iv) supplying gas 2 containing an oxidizing gas to a second discharge space of the atmospheric pressure plasma processing apparatus at atmospheric pressure or at approximately atmospheric pressure;

(v) applying high frequency electric field B to the second discharge space, whereby gas 2 is excited; and

(vi) exposing a substrate having thereon a film formed by gas 1 to excited gas 2, and

moving the substrate between the first discharge space and the second discharge space.

18. (Original)

The method of claim 17, wherein the reducing gas is hydrogen.

19. (Previously Presented)

The method of claim 17, wherein

the first discharge space of the first process is formed between a first electrode and a second electrode which are facing each other; and

the first high frequency electric field is applied by the first electrode and the second high frequency electric field is applied by the second electrode.

20. (Previously Presented)

The method of claim 19, wherein:

high frequency electric field B is formed by superposing a third high frequency electric field and a fourth high frequency electric field.

21. (Previously Presented)

The method of claim 20, wherein:

the second discharge space of the second process is formed between a third electrode and a fourth electrode which are facing each other; and

the third high frequency electric field is applied by the third electrode and the fourth high frequency electric field is applied by the fourth electrode.

22. (Previously Presented)

The method of claim 21, wherein the first electrode and the third electrode are common.

23. (Original)

The method of claim 20, wherein:

a frequency of the fourth high frequency electric field $\omega 4$ is higher than a frequency of the third high frequency electric field represented by $\omega 3$;

intensity of the third high frequency electric field V3,

intensity of the fourth high frequency electric field V4,

and intensity of discharge starting electric field IV2 satisfy one of the following formulas:

$V3 \geq IV2 > V4$ and $V3 > IV2 \geq V4$; and

a power density of the fourth high frequency electric field is not less than 1 W/cm^2.

24. (Original)

The method of claim 17, wherein the first process and the second process are alternately repeated a plurality of times.

25. (Original)

The method of claim 17, wherein a thickness of the film accumulated in the first process per time is not more than 20 nm.

26. (Original)

A substrate having thereon the film formed by the method of claim 3.